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10/820,976	04/08/2004	James W. Templeton	5900-00101	9048

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EXAMINER

SUGENT, JAMES F

ART UNIT	PAPER NUMBER
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2116

MAIL DATE	DELIVERY MODE
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08/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/820,976

Applicant(s)

TEMPLETON, JAMES W.

Examiner

James F. Sugent

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is sent in response to Applicant's Communication received May 21, 2007 for application number 10/820,976 originally filed April 8, 2004. The Office hereby
5 acknowledges receipt of the following and placed of record in file: amended claims 1-39 are presented for examination.

Claim Rejections - 35 USC § 112

Applicant's arguments, see *REMARKS*, filed May 21, 2007, with respect to the rejection
10 under 35 U.S.C. § 112, second paragraph, to claims 1-3, 12-20, 23-24, 27, 30-31 and 35 as being indefinite are persuasive. Therefore, the rejection under 35 U.S.C. § 112, second paragraph of claims 1-3, 12-20, 23-24, 27, 30-31 and 35 has been withdrawn.

Claim Rejections - 35 USC § 103

15 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

20 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35
25 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5

Claims 1-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapius et al. (U.S. Patent No. 7,049,798 B2) (hereinafter referred to as Chapius1) (cited by Applicant) in view of Chapius et al. (U.S. Patent No. 7,000,125 B2) (hereinafter referred to as Chapius2) (cited by Applicant).

10

As to claim 1, Chapius1 discloses a power delivery management system (20), the system comprising: a plurality of digital power management devices (220, 230, 240 and 250), wherein each of the plurality of power management devices comprises a plurality of functions (configuration data from 210), wherein each of the plurality of power management devices is operable to provide power to one or more point of load devices (Though the point of load devices are not explicitly shown, Chapius1 does disclose providing a load to a circuit; column 1, lines 14-37) (column 4, lines 17-30 and column 4, lines 51-67); and a control and communication bus (200), wherein each one of the plurality of digital power management devices is coupled to the control and communication bus (as shown in fig. 2); wherein each respective one of the plurality of digital power management devices includes a controller (310) operable to control the functions of the respective digital power management device (column 5, lines 13-63); and wherein the plurality of digital power management devices exchange information over the control and communication bus (via controller 210) to exchange information to coordinate (synchronize) their functions (column 6, lines 36-52).

20

25

Chapius1 does not explicitly disclose the plurality of digital power management devices are operable to communicate with each other over the control and communication bus.

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Chapius2 teaches a distributed power system of point-of-load regulators (Fig. 3) that comprises a plurality of digital power management devices (column 4, lines 35-57).

Furthermore, Chapius2 teaches the plurality of digital power management devices are operable to communicate with each other over the control and communication bus (column 7, lines 21-

5 29). Chapius2 further teaches the additional benefit of having lower complexity and smaller size to the overall power system (column 1, lines 47-64).

It would have been obvious to one of ordinary skill of the art having the teachings of Chapius1 and Chapius2 at the time the invention was made, to modify power delivery management system of Chapius1 to include the plurality of digital power management devices
10 are operable to communicate with each other over the control and communication bus as taught by Chapius2. One of ordinary skill in the art would be motivated to make this combination of having the plurality of digital power management devices operable to communicate with each other over the control and communication bus in view of the teachings of Chapius2, as doing so would give the added benefit of having lower complexity and smaller size to the overall power
15 system (as taught by Chapius2 above).

As to claim 2, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein at least one of the plurality of digital power management devices is also operable to coordinate and/or control the functions of one or more other ones of the plurality of digital power
20 management devices (Chapius1 discloses the individual converters transferring a single bit to the other converters to synchronize the clocking; column 6, lines 36-52).

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As to claim 3, it is directed to the system of steps set forth in claims 1 and 2. Therefore, it is rejected for the same basis as set forth hereinabove.

As to claim 4, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein the plurality of functions comprise one or more power delivery functions (as shown in the list of functions; column 4, lines 53-64); wherein each respective one of the plurality of digital power management devices includes a controller (310) operable to control the one or more power delivery functions of the respective digital power management device (column 5, lines 13-46).

As to claim 5, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein at least a subset of the plurality of digital power management devices each comprise the same functions (column 4, line 51 thru column 5, line 12).

As to claim 6, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein one or more of the plurality of digital power management devices comprises a voltage converter unit (column 4, lines 17-30).

As to claim 7, it is directed to the system of steps set forth in claims 1 and 6. Therefore, it is rejected for the same basis as set forth hereinabove.

As to claim 8, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein the control and communication bus is a digital bus (column 6, lines 36-52).

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As to claims 9-12, they are directed to the system of steps set forth in claim 1 and 8.

Therefore, it is rejected for the same basis as set forth hereinabove.

As to claim 13, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein
5 each individual one of the plurality of digital power management devices is operable to be programmed and/or configured across the control and communication bus (column 4, line 51 thru column 5, line 12).

As to claim 14, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein
10 two or more of the plurality of digital power management devices are operable to be grouped together in a current sharing configuration (column 5, lines 13-46).

As to claims 15-19, they are directed to the system of steps set forth in claims 1 and 14. Therefore, it is rejected for the same basis as set forth hereinabove.

As to claim 20, Chapius1 in combination with Chapius2 taught the power delivery
15 management system in claim 1, as shown above. Chapius2 further teaches the system wherein each one of the plurality of digital power management devices is operable to provide feedback data to all other ones of the plurality of digital power management devices (column 5, lines 13-63).

As to claim 21, it is directed to the system of steps set forth in claim 1 and 20. Therefore,
20 it is rejected for the same basis as set forth hereinabove.

As to claim 22, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein

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the functions of the plurality of digital power management devices comprise at least one of: supply sequencing; phase offset adjustment; current sharing; voltage programming and voltage tracking; and ramp rate control (column 5, line 13 thru column 6, line 20).

As to claims 23 and 24, they are directed to the system of steps set forth in claims 1 and

5 22. Therefore, it is rejected for the same basis as set forth hereinabove.

As to claim 25, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein the functional features of the plurality of digital power management devices include margining (column 5, line 13 thru column 6, line 20).

10 As to claim 26, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein the functional features of the plurality of digital power management devices include voltage supply sequencing (column 5, line 13 thru column 6, line 20).

As to claim 27, Chapius1 in combination with Chapius2 taught the power delivery
15 management system in claim 1, as shown above. Chapius2 further teaches the system further comprising at least one master control device (210) coupled to the control and communication bus, wherein the at least one master control device is operable to centrally control the plurality of digital power management devices to implement advanced features (column 4, line 17 thru column 5, line 12).

20 As to claims 28, 29 and 35-39, they are directed to the system of steps set forth in claims 1 and 27. Therefore, it is rejected for the same basis as set forth hereinabove.

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As to claim 30, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein each one of the plurality of digital power management devices is operable to automatically self-test (column 4, line 17 thru column 5, line 12).

5 As to claim 31, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein each one of the plurality of digital power management devices is operable to auto-calibrate (column 7, line 55 thru column 8, line 17).

10 As to claim 32, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein the power delivery management system is comprised on a printed circuit board; wherein each of the plurality of digital power management devices is distributed on the printed circuit board (column 4, lines 31-50).

15 As to claim 33, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein each of the plurality of digital power management devices comprises an integrated circuit (column 4, lines 31-50).

20 As to claim 34, Chapius1 in combination with Chapius2 taught the power delivery management system in claim 1, as shown above. Chapius2 further teaches the system wherein the control and communication bus is a serial bus (column 6, lines 36-52).

Response to Arguments

Applicant's arguments filed May 21, 2007 have been fully considered but they are not persuasive.

As to independent claim 1, Applicant argues that the cited references (Chapius1 and
5 Chapius2 as cited above), taken together or separately, do not teach or suggest “*a plurality of digital power management devices are operable to communicate with each other over the control and communication bus to exchange information to coordinate their functions*” (see REMARKS, bottom of page 9). The Examiner disagrees.

First, the Applicant points out that Chapius1 does not interpret “synchronizing devices”
10 to mean “coordinating functions” as recited in claim 1. However, the Examiner would like to point out that *coordinating* is synonymous with *synchronizing* in order to present a particular order or sequence of events [functions] to carry out. Furthermore, nowhere does the claim recite the meaning or intention of what is done when the functions coordinate.

Secondly, the Applicant extensively argues that neither Chapius1 nor Chapius2 supports
15 the POL regulators exchanging information with each other. Again, the Examiner disagrees. Examiner relies upon Chapius1 to teach the POL regulators to exchange information [clock cycles and a data bit] over the bus, ***via the controller***, to coordinate functions [synchronize the devices – i.e. POL regulators] (column 6, lines 36-52). The Examiner then relies upon Chapius2 to teach the POL regulators to communicate with each other. The Examiner pointed out a
20 passage from Chapius2 (column 7, lines 21-29) that clearly states the “POL regulators communicate with each other over the current share interface” and a “synch/data line may be used to communicate synchronization information to permit phase interleaving of the POL

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regulators” when a controller is not present. The also Applicant argues, in re the same limitation, that the “Examiner does not clearly show how information between the POL regulators is exchanged.” Again, the process of “how” the information is exchanged is not claimed.

Therefore, the combination of Chapius1 and Chapius2 *does* suggest the POL regulators are

5 operable to communicate with each other over the control and communication bus to exchange information to coordinate their functions. As a result, the rejection under 35 USC § 103 over Chapius1 in view of Chapius2 remains intact.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., “how

10 information between the POL regulators is exchanged”) are not recited in the rejected claim(s).

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

15 *Conclusion*

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO
20 MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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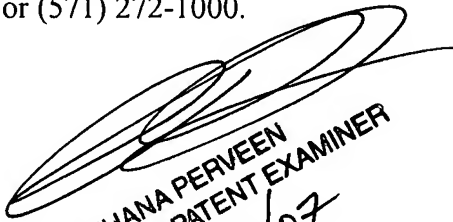
CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5 Any inquiry concerning this communication or earlier communications from the Examiner should be directed to James Sugent whose telephone number is (571) 272-5726. The Examiner can normally be reached on 8AM - 4PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rehana Perveen can be reached on (571) 272-3676. The fax phone number for the
10 organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR
15 system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call (800) 786-9199 (IN USA OR CANADA) or (571) 272-1000.

20 James F. Sugent
Patent Examiner, Art Unit 2116
August 8, 2007


REHANA PERVEEN
SUPERVISORY PATENT EXAMINER
8/13/07